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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,718	10/27/2005	Patrick Kromotis	5367-165PUS	9142

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EXAMINER

INGHAM, JOHN C

ART UNIT	PAPER NUMBER
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2814

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,718	Applicant(s) KROMOTIS ET AL.	
	Examiner JOHN C. INGHAM	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/05/07;10/29/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 October 2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims **1-7 and 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata (US 4,935,665), JP2001085748 from the IDS filed on 30 March 2005, hereinafter AAPA, and further in view of Joshi (US 2003/0122247). The AAPA translation was previously made of record in the Action of September 2006.

5. Regarding claims **1, 4, and 6**, Murata discloses in Fig 7 a light source module having a plurality of LEDs (two shown) connected to a metal carrier (12) of aluminum or copper (col 3 ln 33) in an insulating manner (via insulating layer 13), the LEDs being surrounded by a frame (Fig 7 item 4), and potting composition (col 4 ln 12) arranged between the frame and the LEDs, wherein a printed circuit board (items 13, 15 and 16 form a printed circuit board, see col 3 ln 31-57) is arranged between the frame (4) and the metal carrier for electrically connecting the LEDs. Murata fails to specify that the frame has expansion joints.

The AAPA discloses in Fig 2A a light source module having a plurality of LEDs wherein the LEDs are surrounded by a frame (8) of plastic (¶19) and the frame has expansion joints (9) of thinned plastic in order to ease the stress of thermal expansion (¶ 04). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of AAPA in the module of Murata in order to ease thermal expansion stress. Murata and AAPA do not specify that a separating cut is provided in the expansion joints.

Joshi discloses in Fig 3A a multi-chip package having troughs etched completely through the frame to create expansion joints and ease stress (§ 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Joshi in the module of Murata and AAPA in order to ease stress.

6. Regarding claims **2, 3, and 7**, AAPA discloses in Fig 2B the module of claim 1 wherein the frame (8) is segmented into a plurality of frame parts by expansion joints (9), wherein one cutout (circular region 6) for receiving LEDs is provided per each of the frame parts, and wherein the LEDs are arranged in a grid.

7. Regarding claim **5**, AAPA discloses in Fig 2A the module of claim 1 wherein the frame (item 7) is adhesively bonded at the underside towards the printed circuit board (item 5, formed by a PCB, ¶19).

8. Regarding claim **9**, Murata discloses the module of claim 1, wherein the printed circuit board is obviously a flexible printed circuit board (item 13 is polyimide – typically flexible, lead patterns 15 and 16 are copper or conductive metal).

9. Regarding claims **10**, Murata discloses in Fig 7 the module of claim 1, wherein two LEDs (two shown) are separated from each other by the frame (4), and the two LEDs are electrically interconnected by said printed circuit board (13, 15, 16).

10. Claim **8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murata, AAPA, Joshi and Huang (US 6,545,332). Murata, AAPA, Joshi and Huang do not specify wherein segmentation of the frame is carried out by a sawing device so that separating cuts arise between the frame parts.

Huang teaches in Fig 9 and 10 a frame that is segmented into a plurality of frame parts by expansion joints, has separating cuts, and teaches the method of separating optical package units by a sawing method so that the modules can simultaneously undergo a molding process and increase productivity (col 6 ln 37-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Huang in the method of Murata in order to increase productivity and simultaneously process and separate the frame parts.

11. Claims **11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata, AAPA, Joshi and Collins (US 2002/0139987).

12. Regarding claim **11**, Murata does not specify wherein each LED comprises several optoelectronic components arranged on a carrier substrate. Collins teaches that multiple optoelectronic components may be formed on a single carrier substrate (§02) in order to simultaneously generate different colors of light (§31). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Collins on the module of Murata in order to generate different colors of light.

13. Regarding claim **12**, Murata discloses the module of claim 11, wherein said printed circuit board (13, 15, 16) is arranged between said carrier substrates (circuit board is beneath frame that surrounds each LED mounting location, therefore the circuit board is between LED carrier substrates at different mounting locations).

Response to Arguments

14. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection. However, the module of Murata (Fig 7, see also plan view Fig 10) includes insulating polyimide (13) with conductive copper traces (15, 16) printed thereon – forming a printed circuit board.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN C. INGHAM whose telephone number is (571)272-8793. The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Howard Weiss/
Primary Examiner
Art Unit 2814

John C Ingham
Examiner
Art Unit 2814

jci